

What is claimed is:

1. A flip-chip BGA semiconductor device in which a semiconductor chip is mounted on a substrate by a reflow process;
 - comprising a stiffener that is bonded by means of adhesive to the area surrounding said semiconductor chip on the surface of said substrate on which
 - 5 said semiconductor chip is mounted;
 - wherein gaps are provided between said stiffener and said substrate that each extend outwardly from positions that confront opposite sides of said semiconductor chip and that communicate with the ends of said substrate.
2. A flip-chip BGA semiconductor device according to claim 1, wherein one of said gaps on two sides of said semiconductor chip is provided across the width of the side of said semiconductor chip that said one gap confronts.
- 5 3. A flip-chip BGA semiconductor device according to claim 1, wherein both of said gaps on two sides of said semiconductor chip are provided across the widths of the sides of said semiconductor chip that said gaps confront.
- 5 4. A flip-chip BGA semiconductor device according to claim 1, wherein said gaps are formed by depressions that are provided in the surface of said substrate on which said semiconductor chip is mounted.
- 5 5. A flip-chip BGA semiconductor device according to claim 1, wherein said gaps are formed by depressions that are formed in the surface of

said stiffener that faces said substrate by making portions of the area of said stiffener thinner than other areas.

5

6. A flip-chip BGA semiconductor device according to claim 5,
wherein said adhesive is not provided in portions in which said depressions are
formed.